

Message Text

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ACTION EUR-25

INFO OCT-01 ISO-00 FEA-02 AEC-11 AID-20 CEA-02 CIAE-00

CIEP-02 COME-00 DODE-00 EB-11 FPC-01 H-03 INR-10

INT-08 L-03 NSAE-00 NSC-07 OMB-01 PM-07 RSC-01 SAM-01

SCI-06 SP-03 SS-20 STR-08 TRSE-00 ACDA-19 IO-14 PA-04

PRS-01 USIA-15 DRC-01 /207 W
----- 009294

R 130821Z JUN 74

FM AMEMBASSY HELSINKI

TO SECSTATE WASHDC 7553

INFO AMEMBASSY COPENHAGEN

AMEMBASSY MOSCOW

AMEMBASSY OSLO

AMEMBASSY STOCKHOLM

USMISSION EC BRUSSELS

LIMITED OFFICIAL USE SECTION 1 OF 2 HELSINKI 1168

E.O. 11652: N/A

TAGS: TECH, FI, UR, BEXP

SUBJECT: PROGRESS ON FINLAND'S FIRST NUCLEAR POWER
PLANT; DELIVERY OF MAJOR COMPONENTS FROM
USSR DELAYED

REF: HELSINKI 0248, FEB. 6, 1974

1. SUMMARY: CONSTRUCTION OF FINLAND'S FIRST NUCLEAR
POWER PLANT, NEAR LOVIISA, IS SOMEWHAT BEHIND SCHEDULE.
FIRST MAJOR COMPONENT FROM SOVIET UNION WAS DELIVERED
ALMOST YEAR LATE, CAUSING CONSTRUCTION AND INSTALLATION
PROBLEMS. PROJECT DIRECTORS ARE CONCERNED BECAUSE ICE
CONDENSER SAFETY SYSTEM, BEING BUILT ON LICENSE FROM
WESTINGHOUSE, HAS NOT YET BEEN LICENSED BY USAEC FOR
OPERATION IN US. FUTURE NUCLEAR POWER PROGRAM HERE MAY
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AFFORD MAJOR OPPORTUNITIES FOR US SUPPLIERS. END SUMMARY.

2. VISIT OF ROBERT TEDESCO, ASSISTANT DIRECTOR OF LICENSING REGULATIONS, US ATOMIC ENERGY COMMISSION, AFFORDED ECONOMIC COUNSELOR AN OPPORTUNITY ON MAY 29 TO VIEW CONSTRUCTION PROGRESS AT LOVIISA NUCLEAR POWER STATION, BEING CONSTRUCTED FOR AND IN LARGE PART BY THE STATE-OWNED ELECTRIC POWER COMPANY IMATRAN VOIMA OSAKEYHTIO (IVO). THE TWO REACTORS AND RELATED MECHANICAL EQUIPMENT AND FOUR TURBOGENERATORS FOR THE PLANT ARE BEING SUPPLIED BY THE RUSSIAN ORGANIZATION V/O ATOMERGOEXPORT. REACTORS ARE NOVovorONESH-TYPE 1375 MWT PRESSURIZED WATER. ONE UNIT IS SCHEDULED TO BEGIN COMMERCIAL OPERATION IN JUNE 1975 AND THE OTHER IN APRIL, 1978. EACH UNIT WILL HAVE GROSS ELECTRICAL OUTPUT OF 440 MEGAWATTS. CONSTRUCTION OF THE FERROCONCRETE BUILDINGS IS WELL ALONG, BUT LITTLE MACHINERY HAS BEEN INSTALLED. FIRST OF SIX STEAM GENERATORS (HEAT EXCHANGERS) FOR FIRST UNIT HAD JUST ARRIVED FROM USSR, NEARLY YEAR LATE. STEAM GENERATORS SHOULD HAVE BEEN INSTALLED IN CONTAINMENT SILO T UNIT NO. 1 AT AN EARLY STAGE OF CONSTRUCTION, BUT THEY WILL NOW HAVE TO BE MANEUVERED INTO PLACE THROUGH AN ACCESS DOOR AND TIGHT CLARANCES INSIDE SILO. ACCORDING TO PROJECT DIRECTOR KALVI NUMMINNEN CONSTRUCTION WORK IS ABOUT THREE MONTHS BEHIND SCHEDULE AT PRESENT, PARTLY BECAUSE OF DELAY IN DELIVERY OF THE STEAM GENERATORS, BUT EVEN MORE DUE TO STRIKE WHICH OCCURRED SOON AFTER CONSTRUCTION BEGAN IN 1970. ESTIMATED TOTAL COST OF TWO UNIT PLANT IS ON THE ORDER OF \$200 MILLION, CONSIDERABLY ABOVE ORIGINAL ESTIMATES. FORTUNATELY FOR POWER COMPANY, EVEN WITH MUCH HIGHER-THAN-ESTIMATED CONSTRUCTION COSTS, ELECTRICITY FROM LOVIISA SHOULD NONETHELESS BE PRODUCED AT ABOUT HALF PRICE OF THAT FROM THERMAL POWER PLANTS, THANKS IN PART TO RECENT SHARP INCREASES IN THE PRICES OF IMPORTED FUEL OIL AND COAL.

3. THE STEAM GENERATORS FROM THE SOVIET UNION ARE DESIGNED TO BE USED HORIZONTALLY RATHER THAN VERTICALLY AS IN AMERICA, AND THUS WILL TAKE UP MORE ROOM IN CONTAINMENT SILOS. ACCORDING TO PROJECT ENGINEER, THE TWO CONTAINMENT SILOS, WHICH ARE 64 METERS HIGH WITH AN LIMITED OFFICIAL USE

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INSIDE DIAMETER OF 44 METERS WOULD, IF US TYPE EQUIPMENT WERE INSTALLED, BE CAPABLE OF GENERATING AT LEAST TWICE THE AMOUNT OF ELECTRICITY. ANOTHER PENALTY FINNS ARE PAYING FOR THEIR CHOICE OF SOVIET MECHANICAL COMPONENTS IS THAT IVO HAS NOT BEEN ALLOWED, ALLEGEDLY FOR SOVIET SECURITY REASONS, TO SEND ENGINEERS TO SOVIET UNION TO INSPECT THE EQUIPMENT DURING MANUFACTURING PROCESS AS WOULD BE NORMAL PRACTICE IN WEST. FINNS INSTEAD HAVE

RETAINED SERVICES OF SEVERAL RUSSIAN ENGINEERS WHO ARE OVERSEEING MANUFACTURING IN USSR. SOVIET MANUFACTURING ORGANIZATION BLAMES DELIVERY DELAYS ON STRINGENCY OF FINNISH SPECIFICATIONS AND QUALITY STANDARDS.

4. MAIN APPARENT ADVANTAGE TO FINLAND OF CHOICE OF RUSSIAN MECHANICAL EQUIPMENT FOR LOVIISA IS THAT SOVIET UNION GRANTED IVO FINANCING FOR 20 YEARS AT ONLY TWO AND ONE HALF PER CENT PER ANNUM. VALUE OF EQUIPMENT FROM USSR AMOUNTS TO SOME \$100 MILLION. BALANCE OF EQUIPMENT FOR PLANT, SUCH AS ELECTRICAL CONTROL EQUIPMENT AND ICE CONDENSER SYSTEM IN CONTAINMENT SILOS, IS BEING OBTAINED FROM VARIETY OF SOURCES IN EUROPE AND U.S. WORK IS BEING COORDINATED BY IVO WHICH IS ACTING AS ITS OWN ARCHITECT ENGINEER, CALLING ON CONSULTANTS WHEN NEEDED FOR SPECIALIZED PROBLEMS. SEVERAL HUNDRED RUSSIAN ENGINEERS, TECHNICIANS AND SKILLED WORKERS ARE ALREADY AT SITE AND MORE WILL COME AT LATER STAGE OF CONSTRUCTION TO ASSIST WITH INSTALLATION AND TESTING OF RUSSIAN MACHINERY.

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5. KEY FEATURES OF REACTOR CONTAINMENT BUILDINGS ARE BEING MADE UNDER LICENSE FROM WESTINGHOUSE. THESE ICE CONDENSER SYSTEMS (COSTING SEVERAL MILLION DOLLARS) WILL REDUCE PEAK OVERPRESSURE DURING "DESIGN BASIS" ACCIDENT (DBA), I.E., IF MAIN PRIMARY PIPE RUPTURED FULLY, TO ABOUT ONE-FIFTH OF PRESSURE THAT MIGHT RESULT IF A "CLASSICAL" DRY CONTAINMENT SYSTEM WERE USED. THIS HAS ENABLED CONSTRUCTION OF CONTAINMENT BUILDINGS TO BE CONSIDERABLY LIGHTER (OUTER CONCRETE WALLS EIGHT-TENTHS OF METER THICK) THAN WOULD OTHERWISE BE REQUIRED TO PREVENT THEIR URPTURE BECAUSE OF OVER-PRESSURE IN CASE OF DBA. IT DEVELOPED DURING MR. TEDESCO'S VISIT THAT IVO OFFICIALS ARE WORJIED BECAUSE U.S. ATOMIC ENERGY COMMISSION HAS NOT YET LICENSED ANY US REACTOR USING WESTINGHOUSE ICE CONTAINMENT SYSTEM. THEY SAID THAT IVO HAD SOON TO MAKD DECISIONS ABOUT CONSTRUCTION OF ADDITIONAL NUCLEAR POWER LIMITED OFFICIAL USE

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PLANTS BUT WOULD HESITATE TO CHOOSE DESIGN USING WESTING-

HOUSE ICE CONDENSER SYSTEM BEFORE IT HAS BEEN APPROVED BY USAEC, ESPECIALLY AS SYSTEM HAS NOT PROVEN TO HAVE AS GREAT COST ADVANTAGE AS EXPECTED. MR. TEDESCO WAS ABLE TO REASSURE PROJECT DIRECTOR AND HIS ASSISTANTS THAT NO BASIC FAULT HAD BEEN FOUND IN DESIGN AND THAT PRIMARY CAUSE FOR NONLICENSING WAS THAT NO REACTOR USING SYSTEM HAD YET BEEN COMPLETED. A CONSIDERABLE NUMBER OF REACTORS ARE, HOWEVER, BEING BUILT IN US USING IT, AND TEDESCO SAID HE KNEW OF NO REASON THAT SYSTEM SHOULD NOT BE LICENSED, PROBABLY WITHIN NEXT FEW MONTHS.

6. LOVIISA PROJECT DIRECTOR REVEALED THAT IVO IS CONSIDERING BUILDING TWO MORE REACTOR UNITS, VIRTUALLY IDENTICAL TO THE TWO NOW UNDER CONSTRUCTION, AT THE SAME SITE, GAIN SUING SOVIET NECHANICAL EQUIPMENT. THIS WOULD APPARENTLY HINGE PARTLY ON FINLAND AGAIN GETTING VERY FAVORABLE CREDIT TERMS. DUPLICATING LOVIISA DESIGN WOULD HAVE ADDITIONAL ADVANTAGE OF ENABLING IVO TO USE DESIGN AND CONSTRUCTION EXPERIENCE ALREADY GAINED AND ENABLE IVO'S ENGINEERING RESOURCES TO BE SHIFTED LARGELY TOWARD DESIGNING OR SELECTING DIFFERENT TYPE OF POWER PLANT, USING REACTOR AND RELATED EQUIPMENT SECURED IN WEST, POSSIBLY IN THE UNITED STATES. PROJECT DIRECTOR FELT THAT THE SOVIET UNION WAS NOT PARTICULARLY INTERESTED IN SELLING MORE ATOMIC POWER REACTORS TO FINLAND AND THAT PROCUREMENT BY IVO IN WEST WOULD PROBABLY BE POLITICALLY PERMISSIBLE. THIS CONFLICTS WITH THE OPINION OF OFFICIAL

OF MINISTRY OF TRADE AND INDUSTRY REPORTED PARA. 2
OF REFTEL UT MAY REPRESENT AT LEAST BEGINNING OF
MORE RECEPTIVITY BY GOVERNMENT LEADERS TO ATOMIC PLANT
AND FUEL PROCUREMENT FROM WEST.

7 BECAUSE OF FINLAND'S LACK OF FOSSIL FUELS, ALMOST
FULL UTILIZATION OF HYDROELECTRIC PLANT SITES, AND HIGH
COST OF IMPORTED FUELS, FINLAND MUST DEPEND TO AN INCREAS-
ING EXTENT ON NUCLEAR PLANTS TO MEET INCREASED DEMANDS
FOR ELECTRICITY, ALTHOUGH SOME ADDITIONAL THERMAL PLANTS
WILL ALSO BE BUILT. THE EMBASSY WILL KEEEP IN CLOSE TOUCH
WITH DEVELOPING SITUATION REGARDING NUCLEAR PLANTS TO BE
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CONSTRUCED HERE AS GOOD OPPORTUNITIES SHOULD ARISE FOR
NUCLEAR PLANT CONSTRUCTION OR SALE OF MAJOR COMPONENTS
AS WELL AS NUCLEAR FUEL BY US SUPPLIERS IF CURRENT
RESTRICTIONS ON PROCUREMENT AREAS ARE MODIFIED OR DROPPED.
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